Beyond reciprocal

Beyond reciprocal: The role of platforms in diffusing data value across multiple stakeholders

Purpose: The purpose of this paper is to assess the role of platforms in diffusing data value across multiple stakeholders.

Methodology: Seminal theoretical and managerial work has been critically examined in order to justify the need for improving/extending the contemporary understanding of the data value creation process.

Findings: The results suggest that existing frameworks and conceptualizations of reciprocal data value provide incomplete understanding of the role of platforms in data value diffusion.

Research implications: This paper provides service researchers with a better understanding of the role of platforms in data value diffusion. Future research can develop and validate new frameworks that reflect the proposed extended/improved view of data value creation.

Practical implications: Service and hospitality managers will be able to more effectively manage the role of platforms in data value diffusion. Specifically, this paper proposes that, in order for data to become a source of competitive advantage, there must be a symbiotic relationship among all the stakeholders of the data ecosystem.

Originality/value: We discuss how data creates value for different stakeholders in the hospitality industry.

Keywords: Data, value diffusion, platforms, hospitality, multiple stakeholders

1. Introduction

As consumers, more of our lives are spent in digital environments where our behaviors are recorded in big data sets (Hofacker et al., 2016). Credit cards or other payment systems capture every transaction. Websites capture every browsing behavior and mobile devices can track our movements. Indeed, nearly every behavior in a digital environment leaves behind a trace record of the action, time and often even the location of the behavior. When combined, these data traces create large databases chronicling customer behaviors.

The resulting databases have the potential to create value for different stakeholder groups. For example, service providers often use consumer data to better target and personalize offers. With better personalization, consumers receive indirect benefits, such as more relevant, rewarding and frictionless interactions with the provider, resulting in increased loyalty to the provider. Sometimes consumers also receive a more direct benefit from a service provider in exchange for their data, such as Google Maps providing traffic information, which is derived from other users' travel history. In an ideal situation, both the service provider and the consumer would benefit from data about the consumer's preferences and behaviors. In such situations, data can act as a catalyst for improving the customer experience and increasing loyalty to the provider (El-Manstrly, 2016).

Beyond service providers and customers, a third stakeholder has recently gained prominence in the value creation process: the online *platform*, which matches two or more groups of stakeholders and has two key features (Hagiu and Wright, 2015, p. 163). First, platforms enable direct interaction between two or more distinct types of stakeholders. Second, each side is affiliated with the platform. For example, AirBnB matches renters (i.e., service providers) with customers looking for accommodations. Likewise, Uber matches drivers and

riders. Such platforms gather large amounts of consumer data, which can, in turn, become a core component of the platform's value proposition.

The dynamic and complex nature of customers' service needs require service firms to associate with multiple stakeholders (Hillebrand et al., 2015). Many service firms therefore have started operating within platforms created to establish a more efficient network of stakeholders. Subsequently, stakeholders within these platforms share data to enhance efficiency and value to all stakeholders, including the customer. However, while data and analytics have been central to the success of many of the largest and fastest growing companies, the role that platforms play in data value diffusion across stakeholders (and how this diffusion contributes to the success of the organization) is not well understood. The purpose of this paper is to provide a better understanding of how service providers and platforms can harness the value of data and analytics to achieve a competitive advantage.

Previous researchers have shown that firms compete effectively by creating value for customers (Yu and Sangiorgi, 2018). While this still holds true, we argue that in the evolving network economy, data and value diffusion to all stakeholders in the network (platform) is critical for the long term growth and competitive advantage of service firms. Specifically, we suggest that, in order for data to become a source of competitive advantage, there must be a symbiotic relationship among all the stakeholders of the data ecosystem. For example, the Facebook platform offers a social media site to users without charge. It can then gather data about its visitors and sell targeted access to advertisers. There are network effects as Facebook accumulates more data on consumers; and generating more data about consumers generally means better targeting, which has value to advertisers. This enables Facebook to improve its social network and attract more users and data, providing better targeting for advertisers and

better services for customers, and the process continues. Through such examples, this article critically discusses how data can create value for different stakeholders in the data collection ecosystem and how databases can act as a catalyst to create value for all stakeholders.

2. The Process of Data Value Co-creation

Figure 1 shows a process for how data create value for four types of stakeholders. Two of these stakeholders are always present: consumers and service providers. Consumers generate data and service providers collect and analyze it in proprietary, first-party databases. For example, in the case of a hotel chain, the service provider likely has a record of every time a customer stays at a hotel property, the check-in and check-out dates, the number of rooms purchased, the price paid, etc. It may also have a database of clicks on its website, recording which hotels a consumer has viewed, photo gallery views, offers purchased, etc.

<Figure 1 here>

The data generation system is not binary, however, as other stakeholders are often involved in the data collection process. Platforms such as Expedia, AirBnB and Uber, which match consumers and service providers (often for a fee), are becoming more common. Rather than booking or transacting directly with a service provider, consumers may prefer to visit such platforms, because they provide higher levels of utility; for example, by allowing consumers to compare prices from different providers or see more options. Importantly, platforms also record interactions with consumers, including purchases across service providers (e.g., Expedia knows the purchases of a consumer across Hyatt, Marriott, etc.).

In addition to platforms, a fourth stakeholder exists in the form of second- and third-party data providers. Second-party data is another organization's first-party data. For example, an

airline may know that some consumer is flying to a given city. This is first-party data to the airline. However, the airline may opt to sell or trade flight/trip information to a hotel chain. Such information is considered second-party data to the hotel chain. Third-party data refers to information gathered by firms that collect and sell/rent information, such as demographics. A service provider or platform may pay the third-party provider to "rent" the information to gain a better understanding of its customers, beyond what its first-party data can provide.

When conducted properly, data analysis will ultimately produce some form of actionable information that benefits at least one of the stakeholders. However, the premise of this paper is that the value created should be disseminated across all stakeholders to the greatest degree possible. Here is a simple example of such dissemination: A hotel's transaction database benefits the hotel because it can keep track of who its best customers are and allocate resources more efficiently. The transaction data will have a consumer's contact details, and so the customer does not have to enter it again during the next booking. The hotel chain may also record the consumer's preferences for rooms (e.g., top floor or lower floor, type of bed, etc.), making it more convenient for the consumer to stay at this hotel rather than another. It could even offer surprise amenities based on known preferences (e.g., a basket of fruit or bottle of wine). In such an example, the consumer benefits from a reduction in transaction friction, and the hotel benefits from increased loyalty. In this scenario, both stakeholders benefit from the collection of the data.

A second example illustrates a scenario where additional stakeholders (other than the company and the customer) benefit from data collection. Consider a shopping platform (e.g., Amazon) that matches consumers with retailers or other vendors. The platform can observe and record a consumer's purchases across retailers, even in different categories (e.g., dress clothing, appliances, and electronics). This gives the platform a broad understanding of the consumer's

tastes. The platform can then implement a recommendation system using these data to help the consumer find other items of interest. No single retailer would have such a broad knowledge of the consumer's tastes, and so its recommendations would be less accurate. Thus, platforms integrate complementary resources to co-create value resulting in what Van Riel et al. (2013) refer to these as value constellations. In this scenario, the consumer benefits by getting better recommendations. Likewise, retailers benefit from their participation in the platform, because they can acquire customers that would otherwise not know about (or purchase) their products. Finally, the platform benefits from collecting a commission for the sales. In the following section, we discuss how this type of data value is created and diffused across multiple stakeholders.

2.1 Service Providers and Data Value

Companies can continuously capture their customers' behaviors in real-time and subsequently use the data to enhance the user experience, often driving additional purchase behavior. For example, large lodging companies have the ability to record an enormous number of transactions reflecting all interactions with the firm, including the pre-consumption, during-consumption and post-consumption experiences (Kandampully and Solnet, 2018). Leading hospitality firms such as Marriott, Hilton, and Disney excel at managing customer experiences both offline and online (Kandampully, *et al*., 2018).

There are typically four ways that data can generate value to the service provider: customer relationship management (CRM), research, data products, and resale. In support of the

utility of big data at the firm level, research has found that companies that characterize themselves as data driven are 5% more productive and 6% more profitable than their competitors (McAfee and Brynjolfesson, 2012). Collecting and effectively analyzing big data has altered the business landscape by introducing new opportunities for the creation of strategic marketing advantages (Kunz *et al*., 2017; Lee, 2017). As evidence, McKinsey and Company have asserted that "collecting, storing, and mining big data for insights can create significant value for the world economy, enhancing the productivity and competitiveness of companies and the public sector and creating a substantial economic surplus for consumers" (Manyika *et al*., 2011, p. 1).

In the first form of value creation, data are used to enhance loyalty programs or CRM systems by reducing friction and improving relevance, which affect future consumer behaviors (e.g., higher repurchase and retention rates), consolidated share of wallet, up-selling, cross-selling, etc., allowing for a more efficient allocation of marketing resources. In general, the data are used to optimize contacts with customers, ideally enabling the right message to be sent at the right time to the right customers on the right device. The value comes from enhanced loyalty, which increases future revenue and potentially decreases marketing and service costs (El-Manstrly, 2016).

The second type of value created by big data accrues to the service provider that can use the collected data for marketing research purposes. For example, Malthouse and Li (2017, p. 230) describe social media as "the world's largest focus group" and discuss how insights about how consumers think and feel about a brand can be text mined from social media data. Moving beyond insights, others have suggested using social media data for more descriptive purposes, such as monitoring customer satisfaction over time (e.g., Collins *et al*., 2013). Additionally, some organizations have created their own environments for gathering consumer feedback and

generating new product development ideas (e.g., MyStarbucksIdea and Dell's IdeaStorm) (Hoornaert *et al*., 2017).

The third type of data value creation takes place when firms create new products or services from the data that are collected. For example, the traffic and routing function of Google maps depends on travel data gathered from users. Similarly, smart agriculture services offered by machinery manufactures combine GPS location and crop harvest data, and can inform future decisions on how much fertilizer, irrigation, etc. are required in different parts of the field, improving efficiency (e.g., Rajeswari, *et al.,* 2017).

The fourth way that data create value for service organizations is through data resale and trading. Sometimes the firm can receive monetary payments from other companies for the data. List rental services (e.g., Roberts and Berger, 1999) and third-party data providers like Experian, Epsilon and Axciom have existed for decades, while programmatic ad exchanges (e.g., Zhang *et al.,* 2014; Malthouse et al., 2018) that collect data sets to improve targeting have emerged more recently. However, different countries have different rules governing the sale of such data, and recent EU legislation and the Cambridge Analytica affair are causing companies to rethink these sharing practices (Sloane, 2018).

2.2 Platforms and Data Value

As discussed previously, platforms have a unique ability to observe purchases and other behaviors of customers across multiple service providers, even across various categories. Wirtz et al. (2019) present a typology of platform business models. Among these platform business models are "booking platforms." For example, an online travel agent (OTA) observes purchases across hotels, airlines, car rentals, etc. Similarly, a retail platform like Shoprunner observes

purchases across the major department stores, but also stores in other categories. "Payment platforms," such as PayPal may have even greater visibility into consumer shopping habits. This means that platforms, of multiple types, have a more complete understanding of customers than traditional firms, and as a result, the opportunity to monetize this unique understanding. One way that platforms can do this is through more effective cross-selling. By having a more complete view of the consumer, the platform can make more relevant recommendations of services and products, and then collect a commission for the recommendation/referral from either the customer or the retailer.

Another way that platforms can derive value from data is through advertising and the sale of access to consumers to advertisers. Because the platform has rich data on consumers it can provide precise targeting, which improves the effectiveness of advertisements (Malthouse *et al*., 2018). Platforms like Facebook and Google make much of their revenues from advertising. Further, suppose a travel site knows that some consumers like traveling because they discuss travel issues, post travel pictures, like content about traveling, associate themselves with traveling groups, etc. These data have value to the site, because it can sell the information to an advertiser (e.g., hotel) to improve the targeting of its ads, exposing ads only to customers with an interest in traveling rather than taking a more mass-media approach.

2.3 Consumers and Data Value

The value that customers can derive from sharing data is discussed in Lariviere *et al*. (2013), and includes monetary, social, informational, entertainment, and identity values. Sometimes there is a direct monetary value, such as supermarket loyalty programs providing discounts to those who join the loyalty program and allow the supermarket to record their

purchase data. Similarly, hotel and airline loyalty programs provide various rewards such as a free night or flight, although such rewards are usually directly linked to purchases (e.g., miles or nights) rather than sharing data. A platform like Facebook provides social, entertainment, identity, and informational value to consumers. Likewise, Google would argue that it provides free services such as search, e-mail, calendar, docs, maps, etc. These free services provide benefits to consumers and are a form of informational value. Consumers can also receive convenience value by sharing their data. For example, one who buys groceries online will often be shown lists of frequently purchased items to reduce future search efforts. Search engines and recommendation systems that know more about a consumer and the ephemeral context will provide more relevant search results and recommendations (Herlocker et al., 2004).

2.4 Barriers to Multi-stakeholder Data Value Creation

The process of creating value from customer data is not without obstacles. The first obstacle is that there are risks associated with storing data. Data breaches at large companies such as Equifax, TransUnion, Target, and Marriott (among a number of others) have cost these firms tens of millions of dollars, and senior executives have lost their jobs. A recent study from IBM and the Ponemon Institute (Ponemon, 2018) found that the likelihood and costs of data breaches are increasing. In fact, the average cost of a data breach has increased 6.4% in recent years to $3.86 million.

A second reason is friction. In order to derive value from their data, firms must often share data with consultants and other vendors. However, the risks of sharing are increasing.

Vendors must now carry cyber insurance and obtain various security certifications such as ISO 27001; SSAE 16 audit review; PCI, HIPAA or Cloud Security Alliance STAR's report of compliance; etc. Such requirements increase the friction in doing business and ultimately drive the cost of sharing data upward. When it becomes too costly to personalize the consumer experience through data collection because of such policies, firms are more likely to revert to a one-size-fits-all service, which could result in a less meaningful consumer experience.

The third reason is ethics. The collection of data raises ethical questions about the use, ownership and sharing of that data. Large scale data collection shifts the power of data access, ownership, and sharing from the individual to the organization and challenges the extent to which free will guides one's actions (Zwitter, 2014). Thus, a guiding set of ethical principles regarding the use of data is needed to protect individual rights (Richards and King, 2014). For example, Target's use of data analytic techniques to infer the reproductive status of its female customers highlights the relevance of this issue (Bradlow *et al*., 2017). In fact, Gartner (2015) predicts that as many as 50% of contemporary business ethics violations occur as a result of improper use of big data analytics. As the victims of such ethical violations, consumers who feel powerless and exploited may choose to do business with other firms. This can be critical for hospitality organizations that are battling both increased consolidation as well as the emergence of the sharing economy (Benoit *et al.*, 2017; Lu and Kandampully, 2016).

The fourth reason is that government regulation of data usage is increasing. For example, the European Union recently enacted the General Data Protection Regulation (GDPR). Likewise, the effects of Cambridge Analytica's actions on Brexit and the 2016 U.S. presidential elections prompted the U.S. Congress and the European Parliament to call on Facebook CEO Mark

Zuckerberg to testify about his organization's data use policies. The heightened scrutiny on how data are used may produce further regulation.

The fifth obstacle is poor data quality. Databases are often collected in different systems, and it can be difficult to join them. This problem certainly exists with second- and third-party data, where different firms record data sets with different identification variables, but it also happens when different data sets are collected by the same firm. For example, clickstream data are often gathered through a web server, while payment data are gathered in a transactional database. Answering questions like how the frequency of visits to the website is related to lifetime value requires joining these databases. Unfortunately, this is often not possible either because there is no common key or because it is illegal to do so without customer's permission (e.g., as stipulated in the GDPR). Clickstream data are also problematic because, absent a log-in procedure, it is often not possible to match the browsing behavior of a given user while using one device (say, a mobile phone) with another (say, a laptop computer). Additionally, when users clear their cookies, sessions on the same device over time cannot be matched. Importantly, these are only some examples of data quality issues, and there are many more.

The sixth obstacle to data value creation is that data in a "raw" form (e.g., from some database system) are typically not useable without substantial cleaning. For example, a study by Rogers and Sexton (2012) found that even among firms that were collecting large quantities of data, 39 percent reported they were unable to convert that data into actionable insights. Moreover, after cleaning, further processing is often necessary before the data can be analyzed. For example, multivariate statistical methods like regression and clustering, or machine learning methods such as neural networks and random forests require a matrix with one row per consumer and one column for each variable, while a transaction table has one row per transaction, and a

weblog has one record per click. Accordingly, substantial cleaning and preprocessing are necessary.

3. Moving From Reciprocal Value to Nth Value through Super-platforms

Historically, the concept of value enhancement and value sharing with multiple partners within trade networks was practiced in almost all parts of the world. Value enhancement through sharing with multiple partners is as old as trade itself. Networks of expertise allowed trade to expand by attracting and sharing value with skilled partners, which enhanced the expertise of the network, allowing it to flourish. For example, the wine growing regions in France became recognized for their unique skill in producing high quality wine. To serve this network, multiple skilled contributors were attracted to that region with the prospect of gaining partnership in the shared value from the wine growing region's network.

Similarly, many other industry sectors created value across service providers and contributors by sharing value with everyone within the network. This idea of partnership recognizes the unique skill and expertise of each partner. The sharing of value attracted unique skills into the region and allowed industries to flourish in many parts of the world. Thus, the sharing of value attracted more highly skilled contributors to the network, thereby enhancing its global value. In the past, these value-sharing networks of trade were confined to physical locations. However, today, particularly in the service context, almost all networks are built within the context of the Internet and therefore exist as virtual platforms. Thus, almost all firms today have the opportunity to exist within the context of a platform, providing them with an opportunity to meet customers' needs through networks of partners. It can be argued that service

firms are able to provide higher value to the customer by sharing and building value with the assistance of multiple partners.

There is an on-going battle between the platforms and service providers to be the first destination of consumers. For example, Google has become the first destination for (search) information in many parts of the world. Southwest Airlines does not allow for its prices to be listed on OTA platforms such as Expedia, while most other airlines rely on referrals from OTAs. Likewise, some retailers do not participate on shopping platforms while others do. News services such as the *New York Times* would rather not share subscription revenues with platforms such as Apple News. In order to become the first destination of consumers, platforms must offer them superior value compared with individual service providers, and this value comes, in part, from data. As mentioned earlier, platforms can benefit from network effects by offering greater variety and better personalization. A small platform with a narrow focus will have less information than one with a broader focus, and, in general, the larger the platform the more powerful it is, in that it has a stronger negotiation position with vendors and can explore other ways to monetize its services, such as through advertising and charging for access to consumers visiting the platform. We are observing the emergence of very large and powerful platforms such as Google, Facebook and Amazon, and coin a new label for them as *super platforms.*

The emergence of third-party platforms (or super platforms) that organize and utilize data brings with it a new evolution of the concept of dual creation of firm and customer value (Payne and Frow, 2005; Vargo and Lusch, 2004). Boulding et al. (2005) posited that "CRM is the outcome of the continuing evolution and integration of marketing ideas and newly available data, technologies, and organizational forms" (p. 156). The emergence of additional stakeholders

resulting from new technologies and data sources represents a change in the status quo at least similar in scale to, and potentially much larger than, that brought about by CRM.

Specifically, the focus of CRM was always on the customer-firm interaction. The data of greatest actionable value in traditional CRM systems was the transactional record between the customer and firm (e.g., recency, frequency, monetary, aka "RFM") and utilized primarily to enhance that specific dyadic relationship (namely, the firm to its customer). And while third-party data compilers could enhance a firm's CRM database with additional demographic or lifestyle elements (or supply names with appended information for prospect databases) and firms could rent out their customers' names to competitors for a fee (benefitting the firm monetarily while only potentially benefitting the customer via relevant marketing offers), the additional potential value of data to multiple external stakeholders at each point of interaction was far more limited.

In the present data-rich environment, the record of interactions between a customer and firm is pregnant with potential value for platforms that facilitate interactions between customers and multiple service providers, and for any of those service providers themselves. The customer-to-customer(s) interaction on online review sites and through social media has potential strategic (e.g., social listening) and tactical (e.g., "red alert") value to firms with the resources in place to act on it. The "super-platform" is positioned to act as both provider and consumer of any and all data generated through customer-firm, customer-customer, firm-firm and, indeed, customer-platform and firm-platform interactions. No data point is limited to only dual value creation. All data – when the skill and resources are available to properly compile and organize it – are potentially valuable to "*N*" stakeholders. Value is not simply reciprocal, but diffused.

But while firms and platforms are, or will be, increasingly able to realize these additional dimensions of value from data assets, the value of the data to customers is more limited in scope – that is, this diffusion of value emanates from the customer rather than toward him/her. At best, customers may trade on the value of their data for the service provided by some firms (e.g., Facebook) – using their data as currency in the focal interaction. But any incremental streams of value resulting from the data belong to those who compile, clean and organize it (i.e., the firms or platforms). Of course, the platform must provide value to consumers to be a first destination; without sufficient value consumers will go elsewhere, and the platform's power will be reduced.

The phrase, "if you're not paying for it, you're not the customer, you're the product" has been attributed to several sources (e.g., Richard Serra, Andrew Lewis, etc.) and is often brought up in relation to individuals' use of social media. But earlier expressions of this sentiment can be traced back to the 1970s in relation to television viewership: the audience watching the "free" TV shows was the product purchased by advertisers (who were, in fact, "the customers"). In a similar way, Facebook users are not customers of Facebook. But as Facebook has evolved from social media site to super platform (facilitating commerce through Facebook Marketplace and individual Buy-Sell-Trade groups), it has taken on a far broader role than simply supplying an audience to advertisers, although that remains part of their core functionality.

If Facebook users (or users of any other super platform) are not, in fact, "customers," a question worth asking is whether it is more beneficial to all parties involved to consider them "partners" rather than "products." Moreover, the extent to which many firms bring together multiple service providers to interact with a shared customer makes them de facto platforms, regardless of whether they might classify themselves as such. Hotels, for example, bring together food service providers, transportation, and other services to interact with their guests. Likewise,

retailers increasingly outsource components of their offerings to third parties (e.g., Starbucks kiosks in supermarkets). A shift in perspective that allows service providers to view themselves as platforms facilitates the participation of the customer in a process of data value creation that benefits all parties rather than a negotiation between two stakeholders for a finite sum. In such a scenario, the customer actively leverages the value of his/her data with all potential stakeholders. Every service provider in the network brought together by the platform benefits by having access to a customer's data (better targeting, decreased costs, increased sales), and the customer benefits in every interaction by providing it, whether through direct compensation or a streamlined customer experience.

4. Discussion

Building and managing an extensive portfolio of value-driven partner relationships comes with numerous challenges for all parties (Johnson and Selnes, 2004; Gummesson, 2002; Gronroos, 1997). Within the context of a platform, relationships co-exist in multiple directions and magnitudes; however in most cases, the business-to-business relationship exists to enhance value in only a bi-lateral nature. The business platform that comes into existence through partnerships draws in and exchanges value from each stakeholder in a complex web of interactions and relationships with a goal of creating new capabilities for the network (Gammoh and Voss 2013; Lambe *et al.,* 2002). This unique symbiotic network is nurtured through data that is created by end users (customers) who represent another set of partners that initiates the creation of data that is valuable for the network of partner within the platform. Thus, there is a wider context of interdependence between partners within the platform in the creation of value.

Interdependence between partners in a network is based on exchanges that may be contingent on other partners' value propositions. Thus, partners may enter into multiple exchange relationships that have the co-operative and interdependent ethos of a network. Given the symbiotic nature of such relationships, quality is at a premium for the network. The quality and value contributed by each network partner is critical for the long-term success of the platform. It is therefore imperative to understand that normal business practices and relationship marketing frameworks of mere "buyer-seller relationships" might be insufficient to maintain platform partnerships.

Data value diffusion represents an opportunity for customers, firms, and platforms alike to more effectively extract the maximum value of customer data assets. Lawful regulations that protect consumers might be necessary; however, their power might be limited in ensuring the privacy of individuals across various countries/cultures. While the US and countries in the European Union are democratic, in many other countries people are censored when they criticize the government or certain institutions. Lawful regulation may not enforce the terms of data ownership and control or protect against threats to data breaches as data breaches can occur in centralized data storage systems despite the laws that protect consumer's rights and privacy.

Empowering customers to extract value from their own data presents an alternative strategy for overcoming these obstacles. By shifting the focus from ownership and control to access and empowerment, firms can mitigate the potential obstacles of utilizing customer data not only between the customer and themselves, but among all stakeholders with whom the customer wishes to interact. Furthermore, the firm's role in this process is ensured – customers simply cannot do this on their own. It must happen in a kind of symbiotic relationship between customers and firms and among firms authorized by customers to access and utilize their data.

Where firms and platforms view customer data as a product to exploit, they not only fail to fully leverage the value of that data, they also run the risk of alienating their own customers. More transparent user agreements are a step in the right direction, but they are not enough. Where firms remain the primary stewards of customer data, the issue of data manipulation will continue to exist even when consumers trust the company. Therefore, security, data manipulation, authenticity, and censorship issues will require regulatory changes. The introduction of GDPR and related legislation in California and India are steps in this direction. Nevertheless, a technological infrastructure, such as blockchain will still be needed to establish a "trustless" data ownership and control platform.

In addition to the risk that consumers are not provided fair value, there is also a risk that service providers do not receive fair value from platforms. For example, platforms that aggregate news such as Facebook and Google take a large share of the advertising revenues, and organizations that create news stories have cut back the sizes of their newsrooms, and many have gone bankrupt. Without quality content, the platform will ultimately lose visitors and its ability to generate revenue. Platforms must therefore exercise their powers carefully to ensure that all stakeholders are deriving sufficient value.

4.1 Future Directions for Empirical Research

Service firms, particularly in the hospitality industry, have recognized the additional benefits to be gained by extending their services through partnership networks and sharing the value thus created. The emphasis is therefore shifting from unidirectional relationships (firm-to-customer) to that of multifaceted partnerships in which all parties recognize the unique

strength/expertise of each partner firm within the network. From an operational perspective, these firms are required to share data and, in the process, they also share the resulting value.

This consistent sharing of data and value should ultimately lead to strengthened ties among the firms in the network, but does it? Future research should examine the role and contributions of these multifaceted partnerships, ascertain those factors necessary to their establishment within the different sectors of the service industry, and determine how best to nurture growth of the online platform. It would also be interesting to explore the attributes of the lead partnering firm and the mechanisms involved in ensuring effective collaboration. Other potential avenues of investigation may consider whether a permanent or amorphous network structure (one that continually adjusts to the needs of the end customer) leads to a more effective online platform performance. Is it always desirable for platforms to expand toward becoming a super platform? Amazon started as a book platform, and then expanded into music, videos, and many other categories. Google has followed a parallel trajectory.

With the proliferation of online platforms, there is a need for more empirical evidence to understand the effect of diffusion of data and its value across networks of partners. Further insight may help to clarify the relationships between the respective partners and the influence of online platforms in maintaining these relationships. Similarly, it would be worthwhile to identify the mechanisms essential in nurturing and expanding the evolving relationships between the platform and its customers.

Within an increasingly competitive market environment, it would be interesting to investigate the significance of brands and brand associations in a platform context. Will individual brands sustain their market dominance, or will the platform's customer focus and/or innovativeness play the more important role? Under what circumstances can a service provider

refuse to participate on platforms (e.g., Southwest Airlines). How can a service provider become more of a platform itself, become a first destination for consumers, and harness platform network effects.

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